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IS 1014 (1956): Bone-Meal, Steamed [FAD 7: Soil Quality and Gertilizers]

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Bhartṛhari—Nītiśatakam

“Knowledge is such a treasure which cannot be stolen”



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Indian Standard

SPECIFICATION FOR BONE-MEAL, STEAMED

U.D.C.

631·852 (083·75) (54)

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INDIAN STANDARDS INSTITUTION
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DELHI 8

*Indian Standard***SPECIFICATION FOR BONE-MEAL, STEAMED****0. FOREWORD**

0.1 This Indian Standard was adopted by the Indian Standards Institution on 15 October 1956, on approval by the Chemical Division Council of the draft finalized on 21 June 1956 by the Heavy Chemicals (Inorganic) Sectional Committee.

0.2 Bones subjected to the action of steam under pressure can be easily crushed to fine powder. The resulting product known as steamed bone-meal finds its largest use as a phosphatic fertilizer. Prolonged steaming of bones immersed in water in a digester, involves extraction of fat, glue and nitrogenous organic matter. This product, known as steamed digested bone-meal contains smaller amounts of nitrogen and correspondingly higher amount of phosphates. Since at present there is no sufficient production of steamed digested bone-meal in this country the Committee responsible for the preparation of this standard decided to have one standard for steamed bone-meal covering both the types. The Committee also decided not to fix any requirement for nitrogen content of the material because its use as fertilizer is valued chiefly for its phosphoric acid content. It is hoped that this standard will give a fillip to the indigenous industry to manufacture quality products.

0.3 Taking into consideration the views of the producers, consumers and technologists, the Committee responsible for the preparation of this standard felt that it should be related to the prevailing manufacturing and trade practices followed in the country in this field. Furthermore, due weightage had to be given to the need for international co-ordination between standards prevailing in different countries of the world. These considerations led the Committee to refer to the following publications:

- OFFICIAL AND TENTATIVE METHODS OF ANALYSIS. 7th ed. Association of Official Agricultural Chemists. 1950.
- FERTILIZERS AND FEEDING STUFF ACT. Statutory Rules and Orders No. 658. United Kingdom. 1932.

0.4 This standard is one of a series of Indian Standards on fertilizers. Other Indian Standard Specifications in the series published so far are:

- IS: 294-1951 SUPERPHOSPHATE
- IS: 826-1955 AMMONIUM SULPHATE, TECHNICAL
- IS: 853-1956 BONE-MEAL, RAW
- IS: 1013-1956 TRIPLE SUPERPHOSPHATE
- IS: 1022-1956 KOTKA PHOSPHATE
- IS: 1023-1956 DICALCIUM PHOSPHATE

0.5 Indian Standard Specification for Bone-Meal, Raw (IS: 853-1956) is a necessary adjunct to this standard. Besides, this standard requires reference to Indian Standard Specification for Test Sieves (IS: 460-1953).

0.5.1 Wherever a reference to IS: 853-1956 appears in this standard, it shall be taken as a reference to the latest version of IS: 853-1956.

0.6 For particle size, the aperture size is based upon IS: 460-1953. Where these sieves are not available, other equivalent standard sieves, as judged by the aperture, may be used. For purpose of comparison the corresponding size according to British Standard Sieves and sieves of the American Society for Testing Materials (ASTM) are given in Appendix B.

0.7 The Government of India have decided to introduce throughout the country a uniform system of weights and measures based on the metric system. Keeping this decision in view, measurements and weights have been given in the metric system. Where the present practice in the country is to use the foot-pound system, figures have been given in this system and equivalents, in round figures, in the metric system have been indicated. It is expected that this will assist the industry to familiarize itself with the metric system so that, in course of time, the use of foot-pound system may be replaced.

0.8 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be

rounded off in accordance with IS: 2-1949 Rules for Rounding Off Numerical Values; the number of places retained in the rounded off value should be the same as those of the specified value in the standard.

0.9 This standard is intended chiefly to cover the technical provisions relating to the supply of the material, and it does not include all the necessary provisions of a contract.

1. SCOPE

1.1 This standard prescribes the requirements for Bone-Meal, Steamed, used for manurial purposes.

2. SAMPLING

2.1 Representative samples of the material shall be drawn as prescribed in Appendix A of IS: 853-1956.

3. REQUIREMENTS

3.1 Description — The material shall be in the form of particles, without undue amount of fluffy or foreign matter, and free flowing.

3.2 Particle Size — Not less than 90 percent by weight of the material shall pass through IS Sieve 120 (*see* Appendix B).

3.3 The material shall comply with the requirements given in Table I, when tested according to the methods prescribed in Appendix B of IS: 853-1956. References to the relevant clauses of Appendix B of IS: 853-1956 are given in col 4 of Table I.

3.3.1 With respect to steamed bone-meal containing more than 16.0 percent by weight of available phosphates soluble in 2 percent citric acid solution, the manufacturer should be entitled to a pro-rata premium for every unit (*i.e.*, 1 percent by weight) of available phosphate (as P_2O_5) soluble in 2 percent citric acid solution over and above the minimum 16.0 percent prescribed.

4. PACKING AND MARKING

4.1 The material shall be packed in jute bags or multi-wall paper bags lined with polythene films or in such other containers as agreed between the purchaser and the vendor.

TABLE I REQUIREMENTS FOR BONE-MEAL, STEAMED
(Clause 3.3)

SL No.	CHARACTERISTIC	RE- QUIRE- MENT	METHOD OF TEST	
			Ref to Appendix	Ref to Cl No. of Ap- pendix B in IS: 853-1956
(1)	(2)	(3)	(4)	(5)
i)	Free moisture, percent by weight, <i>max</i>	7.0	A	—
ii)	Total phosphates (as P_2O_5) percent by weight, (<i>dry basis</i>), <i>min</i>	22.0	—	B-4
iii)	Available phosphates (as P_2O_5) solution in 2 percent citric acid solution, percent by weight, (<i>dry basis</i>), <i>min</i>	16.0	—	B-5

4.2 The containers shall be securely closed and marked with the name of the material and the manufacturer, weight of the material in the container, the guaranteed percentage by weight of total phosphates and available phosphates and recognized trade mark, if any.

4.2.1 The containers may also be marked with ISI Standard Certification Mark.

NOTE — The use of the ISI Standard Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, 1952 and the rules and regulations made thereunder. Details of conditions under which a licence for the use of ISI Certification Mark may be granted to manufacturers or processors may be obtained from the Indian Standards Institution, 19 University Road, Delhi 8.

A P P E N D I X A

(Clause 3.3)

DETERMINATION OF FREE MOISTURE**A-1. PROCEDURE**

where

A-1.1 Weigh accurately about 5 g of the material and dry in an oven at $100^\circ \pm 2^\circ\text{C}$ to constant weight.

 A = weight of the empty bottle,**A-1.2 Calculation**

$$\text{Free moisture, percent by weight} = 100 \times \frac{(B-C)}{(B-A)}$$

 B = weight of the bottle and the material before drying, and C = weight of the bottle and the material after drying.**A P P E N D I X B**

(Clauses 0.6 and 3.2)

COMPARATIVE TABLE FOR THE INDIAN, BRITISH AND ASTM SIEVE SIZES**B-1. COMPARATIVE SIEVE SIZES**

B-1.1 Table II gives the comparative size designation of IS Sieve quoted in this standard together with the designation of BS and ASTM

test sieves against the corresponding size and designation of IS Sieve quoted in this standard.

TABLE II COMPARATIVE TABLE FOR INDIAN, BRITISH AND ASTM SIEVE SIZES AND DESIGNATIONS

Sr. No.	*IS		BS		ASTM	
	Sieve Designation	Aperture (microns)	Sieve Designation	Aperture (microns)	Sieve Designation	Aperture (microns)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	120	1 201	14	1 204	16	1 190

*See also IS: 460-1953.

E R R A T U M

IS:1014-1956 SPECIFICATION FOR BONE-MEAL, STEAMED

Page 3, Table I, col 2, line 2 of Sl No. (iii)

please read 'soluble' for 'solution'